

## **Tennessee Department of Transportation Division of Materials and Tests**

### **Ready Mix Concrete Plant Certification Procedures (SOP 4-3)**

Purpose: The purpose of this document is to outline the process of certification of ready mix concrete plants providing concrete for State projects. These inspections standardize certification throughout the regions, improve concrete quality, assure consistency of product, support quality control, and assure adherence to Tennessee Department of Transportation (TDOT) Standard Specifications for Road and Bridge Construction dated January 1, 2015.

This Standard Operating Procedure (SOP) applies to ready mix plants in Tennessee and out-of-state that provides concrete for TDOT projects.

Discussion: Ready mix concrete producers must undergo a complete inspection of processes, plant equipment, trucks, laboratory equipment, materials, and technician qualifications. A satisfactory plant inspection is required to become an approved producer and these inspections must be repeated annually at a minimum to remain on the Producers List.

#### Approval Procedures for all Concrete Ready Mix Facilities:

#### **1.0 Producer Requirements-**

To become a producer for the TDOT, the Producer must contact the appropriate Regional Materials and Tests office **who will then ensure the following requirements are met.** Regional Materials and Tests personnel will then randomly visit the Producer at a minimum of once per year **as stated in Section 1.8 to verify each producer continues to fulfill these requirements.** However, construction personnel can request additional visits be completed in the event of issues on TDOT project sites. All inspections will be carried under the following guidelines:

**1.1 All producers of concrete to be supplied on TDOT projects shall be CERTIFIED by an approved national quality control program and meet the requirements as shown below:**

- National Ready Mixed Concrete Association (NRMCA) Plant Certification**
- NRMCA Delivery Fleet Option A or Option B**

**Certified producers must submit a copy of their current certification along with documentation that all required inspections (Regional once per year and NRMCA every other year) have been successfully completed. The certification, with accompanying documentation, shall be submitted annually to Regional Materials and Tests for verification. The documentation shall include the inspection report completed by the certifying agency. The Department will review the results to ensure that all deficiencies have been addressed within a reasonable timeframe agreed upon between the Department and the producer. The producer shall notify the Department within five (5) business days in the event that their certification is rescinded for any circumstance.**

**This requirement must be met no later than January 1<sup>st</sup>, 2018 to remain on the Department's Producers List.**

- 1.2 Plant Inspection: The Regional Materials and Tests Inspector will visit the plant to check the overall condition of the plant and mixers. The inspection shall include an overall review of weighing devices, admixture dispensers, stockpile maintenance, bins, and evidence of laboratory inspection. Process control plans and aggregate quality testing reports shall be made available for evaluation. The results of the plant inspection will be documented on Form [DT-1479](#), Ready Mix Concrete Plant Inspection Report.
- 1.3 Laboratory Equipment Inspection: The Regional Materials and Tests Inspector will **verify that the producer has immediate access (within 50 miles) to a lab capable of performing the required testing.** The review of all laboratory equipment will ensure that it meets the requirements for a Type A laboratory, as stated in TDOT Standard Specification Section 106.06. Each review will include an inspection of weighing devices; oven; sampling, reducing, and shaking equipment; thermometers; and other apparatus necessary to perform standard tests and practices. The inventory of equipment will be documented on Form [DT-0309](#), Equipment Inspection for Concrete Plant Laboratories and Jobsites. [SOP 1-4](#) (Laboratory Qualification Requirements) documents the minimum qualifications for field laboratories and concrete testing equipment. **If the laboratory is offsite, the Regional Materials and Tests Inspector shall visit and complete all the required forms listed above to ensure the offsite facility meets the TDOT Standard Specifications.**
- 1.4 Concrete Truck Inspection: The Regional Materials and Tests Inspector or TDOT Project Construction Inspector will inspect all available trucks for data plates, revolution counters, mixer-blade wear, water gauges, axle configuration, tare weight, and allowable gross weights. The inspection is documented on the [Concrete Truck Checklist](#).
- 1.5 Technician Qualifications: The plant shall have personnel certified according to TDOT Standard Specifications Sections 501.03, 604.03, and [SOP 1-3](#) (Field Technician Certification Requirements). All certified technicians are to be listed on the [Certified Technician Form](#) and shall be made available to the TDOT Inspector.
- 1.6 Materials: All materials shall meet the requirements outlined in [SOP 4-4](#) (Submittal and Approval of Concrete Mixture Designs). All constituent materials and admixtures shall be listed on the [Constituent Materials Form](#) and made available upon inspection at the ready mix facility.
- 1.6.1 Aggregates - All aggregates used shall be in accordance with Sections 903.01, 903.03, 903.22, and 903.24 of the Standard Specifications.
- 1.6.2 Cement - All cements shall meet the requirements of Section 901.01 of the Standard Specifications and be on the TDOT Qualified Product List (QPL). The producer shall retain copies of material certifications with chemical and physical properties.
- 1.6.3 Fly Ash, Ground Granulated Blast Furnace Slag, Silica Fume - Other cementitious and pozzolanic materials must meet the requirements of Sections 921.15 or 921.16 of the Standard Specifications, and be on the TDOT QPL.
- 1.6.4 Admixtures - All admixtures must comply with Sections 604.03 and 921.06 of the Standard Specifications and be listed on the QPL.
- 1.6.5 Water - Producers whose facility has access to non-municipal water shall provide testing results for non-municipal water in accordance with Tables 921.01-01 and 921.01-02 of the TDOT Supplemental Specifications. These results shall be submitted to the appropriate Regional Materials and Tests Supervisor and Headquarters Materials and Tests within thirty (30) days of the tests.

- 1.7 Process Control Plan: The Producer must develop a [Batch Plant Process Control Plan](#) annually and submit for approval to Regional Materials and Tests that outlines the steps or procedures that will ensure that the concrete meets the minimum TDOT Standard Specification requirements. The approved Process Control Plan shall be submitted at the preconstruction conference of each project.
- 1.8 Quality Audit: On an annual basis, the batch plant process control procedures, required paperwork, laboratory and plant will be inspected by representatives from Regional Materials and Tests as stated on the [Quality Inspection Checklist](#). Headquarters Materials and Tests will randomly audit batch plants in each region to verify all items within the checklist have been met and/or corrected.
- 1.9 Documentation: [Concrete Plant Records Minimum Requirements](#) must be kept and made available for inspection at all times. These documents will be reviewed during the Quality Audit.
- 1.10 Certification: Upon completion and documentation of initial inspection, Regional Materials and Tests will approve the ready mix producer to be placed on the Producer List. If the producer does not pass a random inspection from the Regional Materials and Tests, Headquarters Materials and Tests, or Project Construction Inspector, the producer may be removed from the Producers List until the issue has been resolved.
- 1.11 Mix Designs: Each plant shall have an approved concrete mix design as outlined in [SOP 4-4](#) (Submittal and Approval of Concrete Mixture Designs) if producing concrete for a TDOT project.
- 1.12 Delivery Ticket: Form [DT-1756](#), Concrete Delivery Ticket must accompany each load to the placement site. The ticket must have all the required information according to TDOT Standard Specifications Sections 501.03 and 604.03.

After all verification testing has been completed and all of the Departmental requirements stated within have been met, Headquarters Materials and Tests will then add the producer to the Producers List.

## **2.0 Quality Monitoring-**

- 2.1 A ready mix concrete plant's approval is contingent upon continuous, satisfactory field performance as well as periodic inspections of material. In addition to the quality monitoring outlined below, a ready mix concrete plant's approval may also be rescinded if there is any concern for safety that may be related to the approved material as determined by a visual inspection.
- 2.2 At a minimum of once a year, an inspection shall be completed by Regional Materials and Tests personnel and reported to Headquarters Materials and Tests for review of the quality control procedures.
- 2.3 If any portion of the quality monitoring fails to meet the requirements set forth in this or any SOP, the ready mix concrete plant's approval for production shall be immediately rescinded and mix production shall cease.
- 2.4 Regional Materials and Tests shall notify the producer of any failing inspection results as soon as possible; at which time a representative from the producer, Regional Materials and Tests, and Headquarters Materials and Tests will hold a conference to identify the location/distribution of

the failing material and to develop a plan for both the utilization of any existing material and the acceptance of newly produced material.

- 2.5 Once it has been demonstrated that the ready mix concrete plant meets TDOT specifications, Headquarters Materials and Tests shall notify both Regional TDOT personnel and the producer.

### **3.0 Facility Removal-**

- 3.1 If a facility is removed from the Producers List, TDOT shall notify the Producer in writing within seven days. This notification shall direct the producer(s) they shall not supply any material(s) to a TDOT project. Upon such notice, the Producer shall immediately cease production, shipment, and placement of such material(s) that is to be supplied to TDOT projects and products. After such notice is issued, the Producer reserves the right to enter into the appeals process requesting an informal meeting to discuss the cease of material(s) for TDOT projects.
- 3.2 Producers shall provide TDOT with a list of material(s) supplied to TDOT projects from the date of the last passing inspection that will include contract numbers.
- 3.3 Constituent materials on the producer's yard utilized during production from the date of the last passing test until the date of the failing test may not be acceptable for further use on TDOT projects. All cost incurred will be the responsibility of the producer.

### **4.0 Time of Facility Removal-**

- 4.1 First finding will result in the facility being removed for a minimum of **three (3)** months.
- 4.2 Any offense in a two year period which will begin from the date the producer was placed back on the Producer List from the **first** offense will result in the facility being removed for a minimum of **six (6)** months.
- 4.3 Any offense in a two year period which will begin from the date the producer was placed back on the Producer List from the **second** offense will result in the facility being removed for a minimum of twelve (12) months.
- 4.4 Any more than 3 findings and TDOT will make a determination of any additional appropriate actions.
- 4.5 After the minimum time has passed, a letter must be submitted to Headquarters Materials and Tests stating the appropriate material(s) that will be provided to TDOT projects. No product shall be accepted until a formal response has been given by the Department. Also, before any producer may resume shipping material to TDOT projects, they must provide a Quality Control Plan addressing actions taken resolving any issues of non-compliance.

### **5.0 Appeals Process-**

- 5.1 If a producer disagrees with the removal of a ready mix concrete facility from the Producer List, the producer, upon complying with Section 3.0, shall provide such disagreement in writing within seven (7) days.
- 5.2 The producer must request a meeting with the Materials & Tests Division Coordinator/Director to discuss the disagreement in detail.

- 5.3 TDOT will meet with the producer within fourteen (14) days of receiving this request. Upon the completion of this meeting, TDOT shall provide the producer the written intent whether to proceed with the removal for the remainder of the time, to include all time not in production.
- 5.4 If the removal is not lifted the producer may choose to continue the appeals process. The producer shall provide such written notice to TDOT Chief Engineer (who has the authority to resolve disagreement) within thirty (30) days of the initial notification of removal from the Producer List.
- 5.5 TDOT Chief Engineer or delegated designee will meet with the producer within fourteen (14) days of receiving this request to provide final resolution within forty five (45) days of the initial removal.